

JUNE 3, 1976

(EDITORS: THIS IS THE FIRST OF TWO SCIENCE NOTEBOOKS DEVOTED EXCLUSIVELY TO THE VIKING LANDING ON MARS, SCHEDULED FOR JULY FOURTH. SERVICES MAY USE THE INDIVIDUAL ITEMS BEFORE THE LANDING, ALTHOUGH SOME OF THEM WILL BE SUITABLE FOR LATER USE, ALSO.)

1. VIKING PREVIEW (DOSA)
2. VIKING FLIGHT PLAN (DOSA)
3. VIKING ORBITER (DOSA)
4. VIKING LANDER (DOSA)
5. THE PLANET MARS (DOSA)

ANNCR: THE VOICE OF AMERICA PRESENTS...SCIENCE NOTEBOOK...A SUMMARY OF EVENTS IN SCIENCE, MEDICINE AND TECHNOLOGY. EACH WEEK AT THIS TIME, WE BRING YOU DEVELOPMENTS THAT MAY AFFECT OUR DAILY LIVES. WITH THE FIRST STORY, HERE IS YOUR SCIENCE EDITOR-----:

(VIKING PREVIEW -- 3-3538 -- DOSA)

EDITOR: ON JULY FOURTH, 1976, THE TWO-HUNDREDTH ANNIVERSARY OF AMERICAN INDEPENDENCE, THE FIRST OF TWO VIKING PROBES IS SCHEDULED TO COMPLETE A MORE THAN EIGHT-HUNDRED-MILLION KILOMETER JOURNEY AND TOUCH DOWN ON PLANET MARS. HERE IS-----WITH A PREVIEW OF THE VIKING MISSION:

VOICE: VIKING ONE WAS HURTLED INTO SPACE FROM THE KENNEDY SPACE CENTER IN FLORIDA ON AUGUST TWENTIETH, 1975. AS PRESIDENT FORD NOTED AT THE TIME, "VIKING REPRESENTS ANOTHER BOLD STEP TOWARD THE BETTERMENT OF MANKIND. THE SCIENTIFIC EXPERIMENTS TO BE CONDUCTED IN THE MARTIAN ATMOSPHERE AND ON THE PLANET'S SURFACE ARE EXPECTED TO ADD STILL ANOTHER SIGNIFICANT DIMENSION TO OUR KNOWLEDGE AS WE CONTINUE TO PROBE THE FRONTIERS OF SPACE."

VOICE: UNLIKE MANY PREVIOUS SPACE PROBES, VIKING IS NOT HEADED FOR
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THE TOTALLY UNKNOWN. THANKS TO SEVERAL EARLIER VISITS TO THE VICINITY OF MARS BY U.S. MARINER SPACECRAFT, AS WELL AS SOVIET PROBES, WE HAVE A GOOD IDEA OF WHAT THE PLANET LOOKS LIKE. MARINER NINE MAPPED THE ENTIRE GLOBE OF MARS AND THOSE MAPS ARE GUIDING THE TWO VIKINGS TOWARD THEIR INTENDED LANDING SITES.

VIKING IS THE MOST AMBITIOUS UNMANNED SPACE PROJECT EVER UNDERTAKEN BY THE UNITED STATES. THE ONE-THOUSAND-MILLION DOLLAR PROGRAM IS DESIGNED TO TAKE PICTURES OF, AND CONDUCT A DETAILED SCIENTIFIC INVESTIGATION, OF MARS, BOTH ON ITS SURFACE AND FROM ORBIT AROUND THE PLANET. THE FOREMOST SCIENTIFIC GOAL OF THE MISSION IS TO TRY TO DETECT TRACES OF LIFE -- PAST OR PRESENT -- ON MARS.

THE FIRST OF TWO VIKINGS IS SCHEDULED TO LAND ON THE FOURTH OF JULY, WITH THE SECOND ARRIVING ABOUT TWO MONTHS LATER. BOTH VIKINGS GO INTO ORBIT AROUND THE PLANET BEFORE THE INSTRUMENT-LADEN LANDER DETACHES ITSELF FROM THE ORBITER AND, SLOWED DOWN BY PARACHUTES AND BRAKING ROCKETS, DESCENDS FOR A SOFT LANDING. THE ORBITER WILL CONTINUE FLYING AROUND MARS AND SERVING AS A COMMUNICATIONS SATELLITE TO RELAY RADIO AND TELEVISION SIGNALS FROM THE SURFACE OF MARS TO THE SURFACE OF THE EARTH.

WHILE THE MOST SPECTACULAR GOAL OF VIKING IS TO SEARCH FOR LIFE ON MARS, SCIENTISTS WARN AGAINST TOO HIGH EXPECTATIONS. ACCORDING TO ONE PROMINENT EXOBIOLOGIST -- A SCIENTIST CONCERNED WITH LIFE OUTSIDE THE EARTH -- THERE IS PERHAPS ONE

VOICE: CHANCE IN FIFTY THAT VIKING WILL FIND LIFE ON MARS. BUT
(CONT):

IT HAS BEEN ALSO POINTED OUT THAT FAILURE TO FIND ANY EVIDENCE OF LIFE ON MARS WOULD NOT NECESSARILY MEAN THAT THERE IS NO LIFE THERE. IT MAY ONLY MEAN THAT WE ARE BOUND IN OUR SEARCH BY OUR LIMITED KNOWLEDGE OF LIFE ON EARTH AND MAY BE UNABLE TO RECOGNIZE WHAT WOULD BE -- TO US -- A STRANGE FORM OF LIFE ELSEWHERE.

WHETHER VIKING FINDS LIFE ON MARS OR NOT, ITS SOPHISTICATED INSTRUMENTS ARE EXPECTED TO HELP US LEARN A GREAT DEAL ABOUT THE ATMOSPHERE, THE CHEMISTRY, THE GEOLOGY OF ANOTHER PLANET. FOR SEVERAL MONTHS, WHILE THE VIKING ORBITERS AND LANDERS RETURN THEIR DATA, THE SCIENTISTS AND ENGINEERS WHO HAVE BEEN PLANNING THIS MISSION FOR MANY YEARS WILL BE LOOKING FOR FRESH IDEAS AND NEW DISCOVERIES EVERY DAY.

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(VIKING FLIGHT PLAN -- 3-3538 -- DOSA)

EDITOR: VIKING ONE, THE FIRST AMERICAN SPACECRAFT DESIGNED TO LAND AND PERFORM SCIENTIFIC OBSERVATIONS AND EXPERIMENTS ON ANOTHER PLANET, HAS BEEN ON ITS WAY SINCE LAST AUGUST TWENTIETH. HERE IS-----WITH A LOOK AT THE VIKING FLIGHT PLAN.

VOICE: VIKING ONE WAS LAUNCHED BY A HUGE TITAN-THREE-CENTAUR ROCKET, AS WAS VIKING TWO ON SEPTEMBER NINTH. TRAVELING THROUGH HUNDREDS OF MILLIONS OF KILOMETERS OF SPACE, BOTH SPACECRAFT HAVE BEEN ORDERED FROM EARTH TO PERFORM MINOR COURSE CORRECTIONS SO THEY CAN RENDEZVOUS WITH MARS. ALSO, BOTH VIKINGS SUFFERED SLIGHT DAMAGE TO SOME OF THEIR SENSITIVE ELECTRONIC INSTRUMENTS WHEN PASSING THROUGH A CERTAIN REGION OF INTERPLANETARY SPACE.

VOICE:VIKING ONE, FAST CLOSING III OF MARS, WILL START TAKING A
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SERIES OF PICTURES OF MARS ON JUNE FOURTEENTH. WE KNOW THAT ITS CAMERAS ARE IN GOOD WORKING CONDITION BECAUSE, EARLIER THIS YEAR, WHEN VIKING ONE WAS STILL MANY MILLION KILOMETERS FROM MARS, THEY SNAPPED THEIR FIRST PICTURE, SHOWING A HALF-MOON-SHAPED BRIGHT OBJECT AGAINST THE BLACK SKY.

AS IT MAKES ITS FINAL APPROACH TO MARS, VIKING WILL BE TAKING MORE AND MORE PICTURES EVERY DAY, WHILE ITS INSTRUMENTS TAKE MEASUREMENTS OF THE MARTIAN ATMOSPHERE. AT FIRST, MARS WILL APPEAR ONLY AS A SMALL OBJECT BUT, WITH EACH PASSING DAY, IT WILL GROW LARGER AND LARGER UNTIL IT FILLS THE ENTIRE FRAME.

ON SATURDAY, JUNE NINETEENTH, VIKING WILL RECEIVE A RADIO COMMAND FROM ITS CONTROL CENTER, THE U-S SPACE AGENCY'S JET PROPULSION LABORATORY IN PASADENA, CALIFORNIA. A BRAKING ROCKET WILL SLOW DOWN THE SPACECRAFT, ALLOWING IT TO BE CAPTURED BY THE GRAVITATIONAL ATTRACTION OF MARS. THIS MANEUVER WILL PLACE VIKING INTO AN EGG-SHAPED ORBIT, RANGING IN ALTITUDE FROM FIFTEEN-HUNDRED TO MORE THAN THIRTY-SIX-THOUSAND KILOMETERS ABOVE THE PLANET'S SURFACE.

VIKING'S ORBIT HAS BEEN CALCULATED TO MOVE THE PROBE AROUND MARS ONCE EVERY TWENTY-FOUR HOURS AND THIRTY-SIX MINUTES. THAT IS THE EQUIVALENT OF ONE DAY ON MARS. AND AT THE LOWEST POINT OF ITS ORBIT, VIKING WILL, PASS REPEATEDLY OVER ITS INTENDED LANDING SITE.

VOICE: THE SPACECRAFT WILL ORBIT MARS FOR TWO WEEKS. DURING THIS
(CONT) PERIOD ITS CAMERAS AND INSTRUMENTS WILL PHOTOGRAPH AND MAKE
MANY MEASUREMENTS OF THE LANDING SITE. MISSION CONTROLLERS IN
CALIFORNIA WILL USE THIS INFORMATION TO DETERMINE THE PRECISE
TIME AND LOCATION OF VIKING'S TOUCHDOWN ON MARS.

PRESENT PLANS CALL FOR VIKING'S LANDER TO DETACH ITSELF -- ON
JULY FOURTH -- FROM THE OTHER PART OF THE CRAFT THAT WILL
REMAIN IN MARTIAN ORBIT. THAT IS SET FOR THREE-TWENTY IN THE
AFTERNOON, CALIFORNIA TIME (22:20 GMT). MORE THAN THREE
HOURS LATER, THE LANDER WILL ENTER INTO THE THIN ATMOSPHERE
OF MARS, TWO-HUNDRED-FIFTY KILOMETERS ABOVE THE PLANET'S
SURFACE. A SHELL-SHAPED HEAT SHIELD WILL PROTECT IT AGAINST
BURNING UP FROM THE ATMOSPHERIC FRICTION.

SIX MINUTES AFTER ENTERING THE ATMOSPHERE, VIKING WILL DROP
ITS HEAT SHIELD, JUST AS ITS PARACHUTE OPENS UP, AND ITS LEGS
UNFOLD. THEN THE BRAKING ROCKETS WILL IGNITE TO FURTHER
SLOW DOWN THE FALL OF THE PROBE. FINALLY, AT SIX FORTY IN
THE EVENING, CALIFORNIA TIME, ON THE FOURTH OF JULY (01:40 GMT,
JULY 5) VIKING WILL GENTLY TOUCH DOWN ON THE SURFACE OF MARS.

WITH THE TREMENDOUS DISTANCE BETWEEN EARTH AND MARS BEING
WHAT IT IS, IT TAKES EIGHTEEN MINUTES FOR A RADIO SIGNAL TO
TRAVEL BETWEEN THE TWO PLANETS. THIS MEANS THAT CONTROLS ON
EARTH WILL NOT BE ABLE TO GUIDE VIKING'S DESCENT. THE PROBE WILL
BE ENTIRELY ON ITS OWN, WITH AN ONBOARD COMPUTER PLAYING THE
ROLE OF THE PILOT. AND WE WILL HAVE TO WAIT EIGHTEEN MINUTES
FOR THE FIRST REPORT THAT VIKING HAS SAFELY LANDED.

(VIKING ORBITER -- 3-3538 -- DOSA)

EDITOR: THE VIKING SPACE LABORATORY ON ITS WAY TO MARS CONSISTS OF TWO MAIN COMPONENTS: THE LANDER WHICH WILL TOUCH DOWN TO SEARCH FOR LIFE ON THE PLANET AND THE ORBITER WHICH ACTS AS A KIND OF A MOTHERSHIP FOR THE LANDER. -----REPORTS ON THE VIKING ORBITER.

VOICE: DURING THE LONG JOURNEY FROM EARTH TO MARS, THE VIKING ORBITER SERVES AS A SHELTER FOR THE LANDER, PROVIDING ELECTRICITY FROM ITS SOLAR CELLS, AND ACTING AS ITS EYES WITH A COUPLE OF TELEVISION CAMERAS. THESE CAMERAS WILL HAVE A CRUCIAL ROLE IN SURVEYING THE MARTIAN SURFACE, ONCE VIKING GOES INTO ORBIT AROUND THE PLANET. AND ONCE THE LANDER HAS LANDED ON MARS, THE ORBITER WILL RECORD AND RELAY MESSAGES AND PICTURES FROM THE MARTIAN SURFACE BACK HOME TO EARTH.

WITH ITS LARGE SOLAR PANELS EXTENDED, THE ORBITER IS MORE THAN THREE METERS HIGH AND REACHES ALMOST TEN METERS ACROSS. IT IS MORE OR LESS A RING-SHAPED VEHICLE, EQUIPPED WITH NAVIGATIONAL INSTRUMENTS, CAMERAS, REMOTE SENSORS AND STEERING ROCKETS.

AS FAR AS SCIENTISTS ARE CONCERNED, THE CAMERAS ARE PROBABLY THE MOST IMPORTANT COMPONENTS ABOARD THE VIKING ORBITER. FOR TWO WEEKS BEFORE THE LANDER DETACHES ITSELF AND DESCENDS TO THE SURFACE, THESE COLOR TELEVISION CAMERAS WILL SCRUTINIZE IN GREAT DETAIL THE PROSPECTIVE LANDING SITES.

FROM THE LOWEST POINT OF THE ORBIT -- FIFTEEN-HUNDRED KILOMETERS ABOVE THE SURFACE -- THE VIKING ORBITER

VOICE:
(CONT)

CAMERAS WILL BE ABLE TO DISTINGUISH OBJECTS AT LEAST FORTY METERS ACROSS. SKILLFUL PHOTOINTERPRETERS, LOOKING AT THE SHADOWS OF THESE OBJECTS, WILL BE ABLE TO DETERMINE WHETHER THE INTENDED LANDING SITES ARE SAFE FOR VIKING. THE LABORATORY SHOULD LAND ON A RELATIVELY LEVEL SITE WHERE IT WOULD REMAIN IN AN UPRIGHT POSITION.

AFTER THE LANDING, THE ORBITER WILL FLY OVER THE LANDING SITE AT THE SAME TIME EVERY DAY. IT WILL PHOTOGRAPH THE AREA TO SEE IF ANY DAY-TO-DAY CHANGES CAN BE DETECTED. ALSO, EVERY TIME THE ORBITER PASSES OVERHEAD, IT WILL RECORD PICTURES AND MESSAGES COMING FROM THE LANDER, AND BROADCAST THESE SIGNALS BACK TO EARTH.

OTHER INSTRUMENTS ABOARD THE VIKING ORBITER WILL STUDY THE MARTIAN ATMOSPHERE, DETERMINE ITS COMPONENTS AND LOOK FOR WATER VAPOR. ALSO, THE VIKING ORBITER WILL MEASURE THE TEMPERATURE IN VARIOUS REGIONS OF MARS.

(VIKING LANDER -- 3-3538

-- DOSA)

EDITOR: THE VIKING LANDER, AMERICA'S AUTOMATIC LABORATORY THAT WILL SEARCH FOR LIFE ON THE SURFACE OF MARS, IS ONE OF THE MOST COMPLEX INSTRUMENTS EVER DESIGNED BY MAN.
-----REPORTS ABOUT IT.

VOICE: IT LOOKS LIKE A GIANT INSECT, WHICH IS APPROPRIATE IN A WAY BECAUSE ONE OF THE VIKING LANDER'S JOBS IS TO LOOK FOR MICROSCOPIC CREATURES -- BUGS -- WHICH MAY BE ALIVE TODAY, OR MAY HAVE LIVED MILLION OF YEARS AGO, ON THE SURFACE OF MARS.

THE VIKING LANDER WAS PACKAGED IN SEVERAL LAYERS OF SHELLS, OR CAPSULES, BEFORE IT WAS LAUNCHED FROM THE KENNEDY SPACE CENTER ALMOST A YEAR AGO. IT WAS PUT INTO A BIG OVEN AND STERILIZED AT GREAT HEAT TO MAKE SURE THAT NO EARTHLY ORGANISMS WENT ALONG FOR THE LONG TRIP TO MARS. AND IT IS PROTECTED BY A HEAT SHIELD WHILE TRAVELING THROUGH THE THIN MARTIAN ATMOSPHERE IN THE FINAL MINUTES OF THE JOURNEY.

THE LANDER WILL SHED ITS PARACHUTE, ITS PROTECTIVE SHELL AND HEAT SHIELD MOMENTS BEFORE IT TOUCHES DOWN. AN ARRAY OF ROCKETS SLOW ITS DESCENT, WITH THE ROCKET NOZZLES POINTED PARTLY SIDEWAYS SO AS NOT TO DISTURB THE GROUND WHERE VIKING TOUCHES DOWN. AND THE ROCKETS USE A SPECIAL NON-ORGANIC FUEL WHICH WILL NOT MISLEAD VIKING'S CHEMICAL INSTRUMENTS AS THEY SEARCH FOR ORGANIC MATERIALS NATIVE TO MARS.

THE AUTOMATIC SCIENTIFIC LABORATORY INSIDE THE VIKING LANDER IS EQUIPPED TO COLLECT AND ANALYZE SOIL SAMPLES. IT HAS A LONG ARM WHICH SCOOPS UP THE SAMPLES AND DROPS THEM THROUGH A FUNNEL INTO THE FURNACES AND OTHER INSTRUMENTS WHICH HELP DETERMINE THEIR COMPOSITION.

VOICE:
(CONT)

THE SCIENTIFIC WORK OF THE LANDER BEGINS DURING ITS DESCENT TO THE SURFACE. INSTRUMENTS WILL MEASURE AND INVESTIGATE THE COMPOSITION OF THE MARTIAN ATMOSPHERE AT VARIOUS ALTITUDES. AND ON THE SURFACE, THEY WILL INVESTIGATE THE PHYSICAL, METEOROLOGICAL, SEISMOLOGICAL, CHEMICAL, GEOLOGICAL, BIOLOGICAL AND MAGNETIC PROPERTIES OF THE PLANET.

THE LANDER WILL WEIGH OVER SIX-HUNDRED KILOGRAMS AS IT STANDS ON ITS THREE LEGS ON THE MARTIAN SURFACE. AT ITS WIDEST POINT IT IS NEARLY THREE METERS ACROSS, NOT COUNTING THE THREE-METER-LONG ARM IT CAN EXTEND TO SCOOP UP SOIL SAMPLES AND DIG TRENCHES INTO THE SURFACE SO THAT SCIENTISTS CAN STUDY THE PHYSICAL PROPERTIES OF THE MARTIAN SOIL.

THE VERSATILE ARM OF VIKING WILL BE ALSO USED TO HOLD A MIRROR IN FRONT OF THE CAMERAS SO THAT THEY CAN SEE BENEATH THE LANDER. THE CAMERAS, AS WELL AS THE OTHER INSTRUMENTS, RECORD WHAT THEY SEE AND MEASURE ON MAGNETIC TAPE, FOR TRANSMISSION EITHER DIRECTLY TO EARTH, OR TO THE VIKING ORBITER WHICH PASSES OVERHEAD ONCE A DAY AND RELAYS THE DATA TO VIKING CONTROL AT THE U.S. SPACE AGENCY'S JET PROPULSION LABORATORY IN PASADENA, CALIFORNIA.

TWO RADIOISOTOPE THERMOELECTRIC GENERATORS -- IN OTHER WORDS, ATOMIC BATTERIES -- PROVIDE THE VIKING LANDER WITH SEVENTY WATTS OF ELECTRICAL POWER TO OPERATE ITS INSTRUMENTS, AND TO KEEP THEM WARM.

VOICE: THE INSTRUMENTS ABOARD THE VIKING LANDER WERE DESIGNED
(CONT) TO OPERATE FOR AT LEAST THREE MONTHS. LATER THIS YEAR,
WHEN MARS WILL PASS BEHIND THE SUN, THE INSTRUMENTS
WILL BE TURNED OFF. BUT ONCE THE PLANET COMES BACK INTO
SIGHT, SCIENTISTS HOPE TO BE ABLE TO START THEIR AUTOMATIC
LABORATORY OPERATING ONCE AGAIN SO THEY CAN CONTINUE
THEIR MARTIAN STUDIES.

(THE PLANET MARS -- 3-3438 -- DOSA)

EDITOR: PLANET MARS, THE FIRST CELESTIAL BODY ON WHICH MAN HAS
DECIDED TO LOOK FOR LIFE, HAS FASCINATED HUMANITY FOR A
LONG TIME. HERE IS -----WITH A SUMMARY OF WHAT WE
KNOW ABOUT MARS ON THE EVE OF THE VIKING LANDING THERE.

VOICE: AMERICAN SCIENCE WRITER DON BANE GAVE THIS VIVID
DESCRIPTION OF THE TARGET OF VIKING: "THE LANDSCAPE
LIES CRACKED AND RED AS SAHARA-DRY, CARBON-DIOXIDE
WINDS BLOW RAZOR-SHARP GRAINS OF DUST ONE-HUNDRED-SIXTY
KILOMETERS AN HOUR, SCOURING MOUNTAINS DOWN TO MOLEHILLS.
GREAT CANYONS SCAR THE VISTA, TORN OPEN BY WRITHINGS
WITHIN THE PLANET OR LEACHED BY EONS OF WATER DROPLETS,
ONE DROP A DAY. THIN CLOUDS SKIRT THE SLOPES OF MAMMOTH
VOLCANOES WAITING QUIETLY THEIR NEXT CHANCE TO SPEW TONS
OF MOLTEN ROCK DOWN THEIR FLANKS AND ACROSS THE PLAINS."

WE KNOW THAT MARS LOOKS LIKE THIS FROM EARTH-BASED
OBSERVATIONS BY POWERFUL OPTICAL TELESCOPES AND, ABOVE
ALL, FROM THE THOUSANDS OF PHOTOGRAPHS TAKEN BY THE
AMERICAN SPACECRAFT MARINER NINE WHICH SPENT A YEAR

VOICE: PHOTOMAPPING THE SURFACE OF MARS WHILE ENDLESSLY ORBITING
(CONT) THE PLANET.

MARS IS THE FOURTH OF THE NINE KNOWN PLANETS OF THE SUN. ALONG WITH MERCURY, VENUS AND EARTH, IT IS CALLED A TERRESTRIAL PLANET BECAUSE IT IS A SOLID BODY, UNLIKE THE MUCH LARGER OUTER PLANETS WHICH ARE BELIEVED TO CONSIST MAINLY OF GASEOUS AND LIQUID HYDROGEN.

FOR SEVERAL DECADES, ASTRONOMERS THOUGHT THAT THE LINES CRISS-CROSSING MARS, AS SEEN THROUGH EARLY TELESCOPES, WERE CANALS, THE HANDIWORK OF INTELLIGENT BEINGS. MARS HAS LONG BEEN A FAVORITE TOPIC OF SCIENCE FICTION WRITERS WHO TOOK SPECIAL DELIGHT IN DESCRIBING MARTIAN INVASIONS OF PLANET EARTH.

FROM THE MARINER NINE PICTURES WE KNOW THAT THE SURFACE OF MARS LOOKS, IN MANY WAYS, LIKE EARTH. IT HAS MOUNTAINS, ENORMOUS VOLCANOS, AND FEATURES THAT LOOK LIKE HUGE RIVER SYSTEMS. THE RIVER BEDS ARE DRY TODAY BUT SCIENTISTS DO NOT RULE OUT THE POSSIBILITY THAT AT ONE TIME WATER FLOWED IN THEM. AND THEY ARE QUITE CERTAIN THERE IS WATER TODAY ON MARS, IN THE FORM OF VAPORS AND IN THE POLAR ICE CAPS. IN FACT, IT IS THIS PRESUMED PRESENCE OF WATER THAT LENDS THE GREATEST SUPPORT TO THE HOPE OF FINDING LIFE ON MARS.

THE PLANET IS ABOUT HALF THE SIZE OF THE EARTH AND TAKES SIX-HUNDRED-EIGHTY-SEVEN DAYS TO COMPLETE

VOICE: A CIRCLE AROUND TO SUN. THIS MAKES THE MARTIAN YEAR
(CONT) ALMOST TWICE AS LONG AS A YEAR ON EARTH. BUT THE
MARTIAN DAY IS ONLY ABOUT THIRTY-SIX MINUTES LONGER
THAN AN EARTH DAY. ONCE VIKING LANDS THERE, MISSION
CONTROLLERS WILL START MEASURING THE TIME BOTH IN EARTH
DAYS AND MARTIAN DAYS. A MARTIAN DAY IS CALLED A
"SOL."

THE THIN MARTIAN ATMOSPHERE, CONSISTING OF CARBON
DIOXIDE, CARBON MONOXIDE, WATER VAPOR AND OZONE, IS
AT TIMES CHURNED UP BY TREMENDOUS STORMS WHICH BLOW DUST
ALL OVER THE PLANET. WHEN MARINER NINE WENT INTO ORBIT
AROUND MARS IN LATE 1971, IT COULD NOT PHOTOGRAPH THE
SURFACE FOR SEVERAL WEEKS UNTIL A VIOLENT STORM THAT
WAS RAGING AT THE TIME CALMED DOWN AND THE DUST SETTLED.

THE TEMPERATURE ON THE SURFACE OF MARS RANGES FROM A
COMFORTABLE TWENTY-SEVEN DEGREES CELSIUS ALL THE WAY
DOWN TO MINUS ONE-HUNDRED-TWENTY DEGREES IN THE POLAR
REGIONS.

MARS HAS TWO MOONS, PHOBOS AND DEIMOS. THEY ARE
RELATIVELY SMALL, DARK CHUNKS OF ROCK, PITTED WITH
MANY CRATERS AND SHAPED SOMETHING LIKE A POTATO.

ANNCR: THIS HAS BEEN. . . SCIENCE NOTEBOOK... A SUMMARY OF
EVENTS IN SCIENCE, MEDICINE AND TECHNOLOGY... BROUGHT
TO YOU BY THE VOICE OF AMERICA, EVERY WEEK AT THIS

ANNCR:
(CONT)

TIME. JOIN US AGAIN, NEXT -----FOR MORE REPORTS
ON DEVELOPMENTS THAT MAY AFFECT OUR DAILY LIVES.

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WJL/RCS/PY